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Enforcement of Regulations Governing Ground Water Contamination from Underground Injection or Disposal of Salt Water in Kansas and Texas

National Water Well Association, Worthington, OH

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ENFORCEMENT OF REGULATIONS GOVERNING GROUND WATER CONTAMINATION FROM UNDERGROUND INJECTION OR DISPOSAL OF SALT WATER IN KANSAS AND TEXAS

by

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16. ABSTRACT

This document describes in detail the UIC programs relating to Class II wells that have been developed in the states of Texas and Kansas. The UIC program regulations, the individual agency administrative procedures and the methods of handling groundwater contamination incidents resulting from the injection or disposal of salt water are discussed. In addition, several case studies of contamination caused by Class II wells are detailed.

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FOREWORD

The Environmental Protection Agency was established to coordinate administration of the major Federal programs designed to protect the quality of our environment.

An important part of the Agency's effort involves the search for information about environmental problems, management techniques and new technologies through which optimum use of the Nation's land and water resources can be assured and the threat pollution poses to the welfare of the American people can be minimized.

EPA's Office of Research and Development conducts this search through a nationwide network of research facilities.

As one of these facilities, the Robert S. Kerr Environmental Research Laboratory is the Agency's center of expertise for investigation of the soil and subsurface environment. Personnel at the laboratory are responsible for management of research programs to: (a) determine the fate, transport and transformation rates of pollutants in the soil, the unsaturated zone and the saturated zones of the subsurface environment; (b) define the processes to be used in characterizing the soil and subsurface environment as a receptor of pollutants; (c) develop techniques for predicting the effect of pollutants on ground water, soil and indigenous organisms; and (d) define and demonstrate the applicability and limitations of using natural processes, indigenous to the soil and subsurface environment, for the protection of this resource.

This report contributes to that knowledge which is essential in order for EPA to establish and enforce pollution control standards which are reasonable, cost effective and provide adequate environmental protection for the American public.

Clinton W. Hall

Clinton W. Hall
Director
Robert S. Kerr Environmental
Research Laboratory

PREFACE

Enforcement of Regulations Governing Ground Water Contamination from Underground Injection or Disposal of Salt Water in Kansas and Texas has been developed under the guidance of East Central University Environmental Research Institute in conjunction with the U.S. Environmental Protection Agency, for use by all of those involved in efforts to implement state Underground Injection Control (UIC) Programs. The report provides a concise description of regulations, administrative procedures and reported ground water contamination incidents in two states with a large number of Class II wells.

For those concerned with implementation of a UIC program and with protecting ground water, this document may be helpful as a ready summary of different ways to administrate a UIC program and methods for investigating ground water contamination by injection operations. Finally, this manual partially fulfills a mandate contained in the Safe Drinking Water Act (P.L. 93-523) requiring the Administrator of the Environmental Protection Agency to "...carry out a study of methods of underground injection which do not result in the degradation of underground drinking water sources."

ABSTRACT

The Underground injection or disposal of salt water produced with oil and gas is regulated as a result of the enactment of the Underground Injection Control (UIC) Program under the authority of the Safe Drinking Water Act. The Act requires the EPA to develop minimum standards to assist the states in establishing effective programs to protect underground sources of drinking water from contamination resulting from the subsurface emplacement of fluids through well injection.

Nearly half of the salt water produced with oil and gas operations in the United States is generated in the states of Texas and Kansas; much of this is either reinjected into the subsurface in enhanced recovery operations or disposed of through subsurface injection in wells designated as Class II wells by UIC program criteria. In the state of Texas, primary enforcement responsibility for UIC program regulations, specifically those pertaining to Class II wells, has been assumed by the Texas Railroad Commission. In the state of Kansas, the Kansas Department of Health and Environment (KDHE) and the Kansas Corporation Commission (KCC) have jointly assumed primary enforcement responsibility. Each of these two states has developed an effective program to deal with salt water injection and disposal wells; each of the agencies in these two states administers and enforces UIC program regulations differently.

This document describes in detail the UIC programs relating to Class II wells that have been developed in the states of Texas and Kansas. The UIC program regulations, the individual agency administrative procedures and the methods of handling ground-water contamination incidents resulting from the injection or disposal of salt water are discussed. In addition, several case studies of contamination caused by Class II wells are detailed.

This report was submitted in partial fulfillment of Cooperative Agreement No. CR-809353 by the National Water Well Association under the sponsorship of the Robert S. Kerr Environmental Research Laboratory, Ada, Oklahoma and in cooperation with East Central University Environmental Research Institute, Ada, Oklahoma. This report covers a period from December, 1981, to December, 1984, and work was completed as of December, 1984.

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